

THE  
ONTARIO WATER RESOURCES  
COMMISSION  
WATER POLLUTION SURVEY  
VILLAGE OF TIVERTON  
and the  
TOWNSHIP OF KINCARDINE  
COUNTY OF BRUCE

1965

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R E P O R T

ON A

WATER POLLUTION SURVEY

OF THE

VILLAGE OF TIVERTON

AND THE

TOWNSHIP OF KINCARDINE

COUNTY OF BRUCE

BY

APRIL - 1965

ONTARIO WATER RESOURCES COMMISSION

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# R E P O R T

## ONTARIO WATER RESOURCES COMMISSION

### INTRODUCTION

A water pollution survey was carried out in the Village of Tiverton and the Township of Kincardine on October 21, 1964. Such surveys are performed routinely, and upon request, by the Commission in an effort to locate and evaluate all existing and potential sources of pollution. Where sources of pollution are found, corrective action is requested.

### I GENERAL

The Township of Kincardine is located in the southwest portion of the County of Bruce and covers an area of 95 square miles. The 1964 Municipal Directory indicates a population of 1595. The Village of Tiverton, located at the north limits of the township on Highway #21 has a population of 360. The Hamlets of Armow, Bervie, and Glammis and a portion of Inverhuron Beach are the only areas of population density within the township.

The economy of the township has, until recently, been based largely on agricultural land use. However, the development of some 300 cottages and tourist properties along the Lake Huron shoreline in the past 15 years has had a marked effect on the township's economic growth. Similarly, the Village of Tiverton, as a retail centre has been affected by the large number

of summer residents and by its proximity to the H.E.P.C. development at nearby Douglas Point. There are no industries in either the township or the village.

The township has approximately 10 miles of frontage on Lake Huron. The Penetangore River, Andrews Creek and Tiverton Creek originate in the township and terminate at the lake.

## II WATER USES

### 1. Private Water Supplies

In the absence of municipal supplies, a number of private water systems supply water in the developed areas of the township. Such systems provide water to the Village of Tiverton, the hamlets of Bervie and Armow, and to cottage settlements. The details of these systems, taken from Commission records are as follows:

#### (a) Village of Tiverton

|                    |  |
|--------------------|--|
| Operator           | - J. W. McFayden, Tiverton   |
| Source             | - 3 drilled wells, average depth 210 feet                                    |
| Number of Services | - 100  |
| Pump Capacity      | - 3100 GPH   |
| Sampling           | - Sampled routinely by the county health unit with 1964 results-satisfactory |

#### (b) Hamlet of Bervie

|                    |  |
|--------------------|--|
| Operator           | - Mr. E. McLellan, Bervie, Ontario   |
| Source             | - Well - details not known   |
| Number of Services | - Not known  |
| Pump Capacity      | - Not known  |
| Sampling           | - 24 samples were collected in 1964 by the county health unit of which 3 samples were doubtful and 3 samples were satisfactory |

(c) Hamlet of Armow

|                    |   |
|--------------------|---|
| Operator           | - S.S. #6 - Mr. S. Hunter, Secretary                                      |
| Source             | - Drilled well - 220 feet deep  |
| Number of Services | - 10  |
| Pump Capacity      | - 700 GPH   |
| Sampling           | - Sampled twice monthly by health unit -<br>1964 samples all satisfactory |

(c) Lime Kiln Water Works (Lime Kiln Lodge Co. Ltd.)

|                    |   |
|--------------------|---|
| Operator           | - Mr. H. Edwards, 260 Yonge Blvd.<br>Toronto 12, Ont.   |
| Source             | - Drilled well - 80 feet deep   |
| Number of Services | - 23 (Lodges & Cottages)  |
| Pump Capacity      | - Not known   |
| Sampling           | - Sampled twice monthly during summer by<br>health unit - 1963 and 1964 samples<br>satisfactory |

(e) Edwards Water Works

|                    |   |
|--------------------|---|
| Operator           | - Mr. H. Edwards, 260 Yonge Blvd.,<br>Toronto 12, Ont.  |
| Source             | - Drilled well 84 feet deep   |
| Number of Services | - 8   |
| Pump Capacity      | - 310 GPH   |
| Sampling           | - Sampled twice monthly by health unit.<br>The results of all samples in 1963<br>were adverse. In 1964, 60% of the<br>samples were adverse and 40% were<br>classed as doubtful. |

(f) Snelling Water Works

|                    |   |
|--------------------|---|
| Operator           | - Mr. C. Snelling, Listowel, Ontario  |
| Source             | - Drilled well - 252 feet deep  |
| Number of Services | - 11  |
| Pump Capacity      | - Not known   |
| Sampling           | - Sampled twice monthly by health unit -<br>1963 and 1964 sample results satisfactory |

(g) Birrel Water Works

|                    |  |
|--------------------|--|
| Operator           | - Mr. W. V. Birrel, Pinkerton, Ontario   |
| Source             | - Drilled well - 101 feet deep   |
| Number of Services | - 13   |
| Pump Capacity      | - 600 GPH  |
| Sampling           | - Sampled twice monthly by health unit -<br>1963 and 1964 results satisfactory |

(h) Cedar Terraces Water Works (Cedar Terraces Ltd.)

|                    |  |
|--------------------|--|
| Operator           | - Mr. W. J. MacKenzie, Pres., Royal<br>York Gardens, Apt. 402 B., Islington.   |
| Source             | - Drilled well - 135 feet deep   |
| Number of Services | - 23   |
| Pump Capacity      | - Not known  |
| Sampling           | - Sampled twice monthly by health unit -<br>1963 and 1964 results satisfactory |

2. Recreational Uses

None of the watercourses in the township are suitable for recreational purposes such as swimming or fishing. The Lake Huron shoreline, however, is ideally suited for both purposes, particularly in the area of Inverhuron Beach at the northwest corner of the township. The beach is adjacent to a provincial park (Inverhuron) located in the neighbouring Township of Bruce.

3. Agricultural Use

The watering of cattle in watercourses within the township is fairly extensive. There was no evidence of water being used for irrigation purposes.



### III WATER POLLUTION

#### 1. Sanitary Waste Disposal

The disposal of domestic wastes in both the village and the township is left to the individual property owner and in most cases, consists of septic tank systems or cesspools.

In the Village of Tiverton, evidence of private drains discharging to a small creek was found and confirmed by the results of analyses of samples taken from the creek. The number of such drains is small and the elimination of pollution from these sources on an individual basis is recommended. Further, the current rate of development in the village could create a more serious pollution problem unless all new waste disposal systems are installed in compliance with local health regulations.

None of the developed areas of the township showed any indication of being the source of pollution of surface or ground waters.

#### 2. Refuse Disposal

A refuse disposal site, operated by the township, is situated on Lot 16, Concession V, one-half mile south of the Hamlet of Armow. All types of waste materials are dumped at random along road side ditches which drain to the north Penetangore River. No effort is made to cover the refuse and a heavy rain could easily

result in waste materials being deposited in the river. A site further removed from a watercourse would be far more suitable for open dumping such as is presently practised.

There was little evidence of indiscriminate dumping in any other area.

### 3. Discussion of Sample Analyses

Samples were taken at locations where pollution was either known or suspected. These samples were submitted to the OWRC laboratory in Toronto for analysis. The results of these analyses are appended along with an appendix outlining the interpretation of the results.

The analyses confirm the presence of domestic wastes in the creek at Tiverton (samples 1 and 2). A comparison of the two samples reveals the substantial increase in BOD, suspended solids, and coliform organisms as the creek passes through the village.

Sample #3 from the Penetangore River at Bervie was found to be within acceptable limits indicating the absence of polluting wastes.

## IV SUMMARY AND CONCLUSIONS

A water pollution survey was carried out in the Village of Tiverton and the Township of Kincardine on October 21, 1964. The results of this survey indicate that improper sewage disposal methods are being practised in the Village of Tiverton resulting in pollution

of a small local creek. Further, the township dump, located south of Armow poses a potential threat of pollution of the Penetangore River.

V RECOMMENDATIONS

It is recommended that:

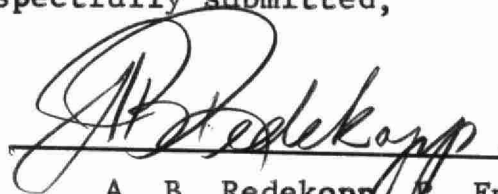
1. Officials of the Village of Tiverton be advised to take steps in co-operation with the Bruce County Health Unit to prevent the discharge of domestic sewage to the local creek.
2. The Township of Kincardine council be advised to arrange for a more suitable location for the disposal of refuse.

Prepared by:

C. Letman, C.S.I.(c).

All of which is respectfully submitted,

District Engineer:

  
A. B. Redekopp, P. Eng.,

Approved by: \_\_\_\_\_

K. H. Sharpe, Director.

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TABLE I  
VILLAGE OF TIVERTON

| <u>Sampling<br/>Pt. No.</u> | <u>Location</u>                               | <u>Date</u> | <u>5-Day<br/>B.O.D.</u> | <u>Total</u> | <u>Solids<br/>Susp.</u> | <u>Coliforms<br/>Diss. per 100 ml.</u> |
|-----------------------------|---|-------------|-------------------------|--------------|-------------------------|--|
| 1.                          | Creek - west end of Tiverton                  | Oct.21/63   | 17                      | 710          | 224                     | 486 29,000                             |
| 2.                          | Creek - east end of Tiverton<br>at Highway 21 | " " "       | 2                       | 994          | 14                      | 980 3,100                              |
| 3.                          | Penetangore River at Bervie                   | " " "       | 3.6                     | 622          | 6                       | 616 110                                |



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